

VGS-308-01 May 2005





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Price Premiums Hold on as U.S. Organic Produce Market Expands

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Abstract

Fresh fruits and vegetables have long been an important component of the organic food sector. Price premiums for organic products have contributed to growth in certified organic farmland and, ultimately, market expansion. This report examines trends in organic prices and market margins for broccoli, carrots, and mesclun mix. The data show that, while organic wholesale price premiums for mesclun mix are narrowing, wholesale and farmgate premiums for broccoli and carrots remain strong.

Keywords: Organic, fresh produce, fruits and vegetables, organic price premiums, organic marketing margins.

Note: A web data product with monthly organic farmgate and wholesale prices for broccoli, carrots and mesclun mix is available at www.ers.usda.gov/data/OrganicPrices.

Acknowledgments

We thank Shubha Chakravarty (formerly with ERS) for invaluable research assistance with the price data and Fred Teensma (Agricultural Marketing Service) for guiding us to various data sets. We also thank Terry Long (Agricultural Marketing Service), Jim Tringe (Foreign Agricultural Service), Ted Jaenicke (Pennsylvania State University), Rick Welsh (Clarkson University), Joy Harwood (ERS), and Lewrene Glaser (ERS) for thoughtful reviews of the manuscript. Appreciation is also extended to the editors, John Weber and Tom McDonald, and to Anne Pearl for text layout and graphic design.

Introduction

Organic produce, once sold only in specialty shops, is currently available in a wide variety of food retail outlets. This new accessibility is the result of many demand- and supply-side forces. Consumer demand for variety, convenience, and quality in fresh produce—both organic and conventional—has grown rapidly. As a result, suppliers are increasingly introducing new varieties, and retailers now offer many organic fresh produce items year-round. Rising consumer demand for convenient products has boosted sales of organic (and conventional) pre-cut produce, with more packaged and branded products available. In response to the growing popularity of organic products, conventional supermarkets and mass market merchandisers have added organic fruits and vegetables to their shelves.

Organic fruits and vegetables are important in the organic sector because they are "gateway" products, or the first organic products purchased by consumers. Organic gateway products, which also include dairy, nondairy (soy), and baby food products, often steer consumers toward other organic products, such as cereals, snacks, and meat and poultry, and are perceived as important frontline commodities for the industry.

USDA's National Organic Program regulates organic products (see box, "National Organic Standards"). USDA introduced national organic standards on October 21, 2002, 12 years after they were mandated by the Organic Foods Production Act of 1990. U.S. organic standards were set in place to build consumer confidence in organic products, and, in turn, sustain and stimulate growth of the industry as a whole. In addition, many industry members hope that the standards will open markets for U.S. exports of organic products through regulatory equivalency.

It is still too early to gauge some of the effects of the regulations; however, since implementation of the standards, U.S. organic sales have continued to grow at rates maintained over the last decade—20 percent or more per year. The fresh produce sector constitutes the largest sector of the organic industry and thus accounts for a significant share of this growth. Although other organic sectors are growing more quickly, especially the dairy and meat sectors, the fresh produce sector remains a key ingredient to the success of the organic industry as a whole.

Over the last decade, price premiums for organic products (or the price difference between organic and comparable conventional products) have contributed to growth in certified organic farmland and, ultimately, market expansion in an industry that was formerly supply constrained. Part of the price premium may result from differential production costs (see box, "Costs of Converting to and Producing Organic Products" on page 6). Another part of the premium results from the relative level of supply and demand of organic products, which contributes to higher profits for organic farmers. Producers hope to maintain this portion of the price premium for their products as the market grows. Laws of supply and demand, however, make it unlikely that price premiums contributing to higher profits and market growth can coexist over the long run: as long as higher profits exist,

¹Any part of a price premium that may be due to differential production costs will be maintained as the market grows. Additional research is needed to understand the components of the organic price premium.

new suppliers will enter the market, and once market supply increases faster than demand, price premiums and the commensurate level of higher profits are likely to decline. For example, organic dairy markets in some EU countries experienced near-zero price premiums for organic milk after a significant increase in supply (*Organic Monitor*, 2002). Analysis of trends in price premiums can provide insight into relative changes in supply and demand of organic products and a clearer sense of market maturity and the likelihood of further growth rates. Studies of price premiums are limited by a lack of consistent and comparable price data.

National Organic Standards and Certification

Organic farming systems rely on ecologically based practices, such as biological pest management and composting; virtually exclude the use of synthetic chemicals, antibiotics, and hormones in crop production; and prohibit the use of antibiotics and hormones in livestock production. Under organic farming systems, the fundamental components and natural processes of ecosystems—such as soil organism activities, nutrient cycling, and species distribution and competition—are used as farm management tools.

Private organizations, mostly nonprofit, began developing certification standards in the early 1970s as a way to support organic farming and prevent consumer fraud. Some States began offering organic certification services in the late 1980s for similar reasons. The resulting patchwork of standards in the various certification programs, however, caused a variety of market problems.

Congress passed the Organic Foods Production Act of 1990 to establish national standards for organically produced commodities, and USDA promulgated final rules for implementing this legislation in December 2000, with an 18-month transition period. As of October 2002, all agricultural products that are sold, labeled, or represented as organic are to be in compliance with the regulations. They require that organic growers and handlers (including food processors and distributors) be certified by State or private agencies/organizations under the uniform standards developed by USDA, unless the farmers and handlers sell less than \$5,000 a year in organic agricultural products. Retail food establishments that sell organically produced agricultural products, but do not process them, are also exempt from certification.

The national organic standards address the methods, practices, and substances used in producing and handling crops, livestock, and processed agricultural products. Although specific practices and materials used by organic operations may vary, the standards require every aspect of organic production and handling to comply with the provisions of the Organic Foods Production Act. Organically produced food cannot be produced using genetic engineering and other excluded methods, sewage sludge, or ionizing radiation. These standards include a national list of approved synthetic, and prohibited nonsynthetic, substances for use in organic production and handling.

USDA organic standards for food handlers require that all nonagricultural ingredients, whether synthetic or nonsynthetic, be included on the national list. Handlers must prevent the commingling of organic with nonorganic products and protect organic products from contact with prohibited substances. In a processed product labeled as "organic," all agricultural ingredients must be organically produced unless the ingredient(s) is (are) not commercially available in organic form. The labeling requirements under the national standards apply to raw, fresh, and processed products that contain organic ingredients and are based on the percentage of organic ingredients in a product. Agricultural products labeled "100-percent organic" must contain (excluding water and salt) only organically produced ingredients. Products labeled "organic" must consist of at least 95-percent organically produced ingredients. Products labeled "made with organic ingredients" must contain at least 70-percent organic ingredients. Products with less than 70-percent organic ingredients cannot use the term organic anywhere on the principal display panel but may identify the specific ingredients that are organically produced on the ingredients statement on the information panel. The USDA organic seal—the words "USDA organic" inside a circle—may be used on agricultural products that are "100-percent organic" or "organic." A civil penalty of up to \$10,000 per violation can be levied on any person who knowingly sells or labels as organic a product that is not produced and handled in accordance with the regulations.

For further information, visit USDA's Agricultural Marketing Service/National Organic Program website, at www.ams.usda.gov/nop/.

Market for Organic Fruits and Vegetables

Over the last decade, the U.S. organic foods industry has grown considerably. The *Nutrition Business Journal* (NBJ) estimates U.S. sales of organic foods at nearly \$10.4 billion in 2003, or about 1.8 percent of total U.S. retail sales of food, up from \$3.5 billion in 1997 (NBJ, 2004). The *Natural Food Merchandiser* (NFM) estimates total U.S. retail sales of organic foods at \$3.3 billion in 1996, up from \$1 billion in 1990 (Dimitri and Greene, 2002). Annual growth rates over the period are around 20 percent (table 1). Growth rate estimates through 2010 range from 9-16 percent annually, with growth slowing in the later years. By 2010, sales of organic foods are estimated to rise to \$23.8 billion, or 3.5 percent of total retail food sales in the United States (NBJ, 2004).

NBJ reports \$4.3 billion in U.S. sales of organic produce in 2003, or 42 percent of total U.S. sales of organic foods. Of this amount, fresh produce accounted for the largest share (93 percent). Frozen, canned, and dried organic produce each accounted for shares of 3 percent or less (fig. 1). NBJ estimates that sales of organic fruits and vegetables in 2010 could reach \$8.5 billion, an increase of more than 300 percent over sales in 2000.

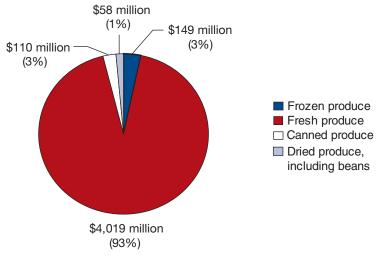
Table 1

Consumer sales and growth rates of organic foods, 1997-2003

Year	Sales	Growth rate	
	Bil. dols.	Percent	
1997	3.6		
1998	4.3	19.7	
1999	5.0	18.2	
2000	6.1	21.0	
2001	7.4	20.7	
2002	8.6	17.3	
2003	10.4	20.2	

Source: Nutrition Business Journal, 2004

Figure 1
Sales and shares of U.S. organic produce by category, 2003



Source: Nutrition Business Journal, 2004.

Although organic food sales make up a small portion (1.8 percent) of total food retail sales in the United States, some organic fruit and vegetable categories have higher market penetration rates than others. For example, in 2002, organic fresh fruit and vegetable sales accounted for 4.5 percent of total fresh fruit and vegetable sales. Sales of organic dried beans accounted for 3.5 percent of the dried bean market. Overall category shares of organic frozen vegetables (1.8 percent), canned fruits (1.0 percent), and canned vegetables (0.6 percent) fell below the overall market share of organic food sales (NBJ, 2003).

The top fresh organic fruits and vegetables purchased in the United States are tomatoes, leafy vegetables, carrots, apples, potatoes, peaches, bananas, and squash (*The Packer*, 2002). Other high-selling produce items include strawberries, beans, mushrooms, cantaloupe, celery, broccoli, and oranges. Consumers tend to buy more organic vegetables than fruit.

Organic produce has long been the top-selling organic food category, and it is becoming more accessible to consumers as supermarkets and other conventional retail channels continue to add the products to their shelves. In 2003, 47 percent of organic foods were sold through conventional channels, 44 percent were sold through natural food stores, and 9 percent were sold through direct and other marketing channels (e.g., farmers' markets, restaurants, exports) (OTA, 2004). The organic industry is also contributing to the fast-growing trend of packaged produce items in supermarkets (Dimitri et al., 2003). *Natural Foods Merchandiser* reports that sales of packaged fresh produce had the highest growth rate among sales of all organic products during 2002-2003, expanding 26 percent to \$364 million. Conventional supermarkets accounted for three-fourths of this total. The number of new organic produce items introduced in retail markets has doubled over the last decade, from 14 in 1993 to 30 in 2003 (USDA, ERS, 2005).

Branding of fresh produce is becoming more common, much of it due to the introduction of new packaged and fresh-cut products. This trend is apparent in the organic sector, where more growers and distributors are identifying their products with their farm name and logo. Among the most prominent brands are Cal Organic, PureVeg, Earthbound Farms, and Pavich—all of which are California based, and some of which have joined forces (either through mergers or joint ventures) with conventional produce firms (NBJ, 2003).

The exact value of U.S. imports of organic fresh fruits and vegetables is unknown.² However, USDA's Foreign Agricultural Service (FAS) estimates the United States imported between \$1 billion and \$1.5 billion in organic foods in 2002 (USDA, FAS, 2005). Imported organic fruits and vegetables must comply with U.S. national organic standards, as well as other import standards, and only certifiers or governments recognized by USDA (including international certifiers) are allowed to classify fresh produce as organic for the U.S. market. International suppliers who can provide tropical produce, off-season fresh produce (e.g., during the winter months), or inseason produce in times of domestic shortages are likely to find the greatest reception in the U.S. market. However, imported products are not assured of acceptance in U.S. markets. Recent nationwide surveys of U.S. consumers show that 41 percent of consumers purchasing organic foods seek "in-

Top 8 fresh organic fruits and vegetables purchased

- 1. Tomatoes
- 2. Carrots
- 3. Peaches
- 4. Squash
- 5. Leafy vegetables
- 6. Apples
- 7. Potatoes
- 8. Bananas

Source: The Packer, 2002.

²Measuring organic imports and exports is difficult because current codes (International Trade Data System) used to analyze trade flows of agricultural products do not separate organic products from conventionally produced products. In the future, tracking the value of products declared as "USDA Organic" may be possible through a database initiative being undertaken by multiple agencies—the Automated Commercial Environment (part of the International Trade Data System) (USDA, FAS, 2005).

season" fresh produce, and 14 percent are concerned with country-of-origin issues (FAO/ITC/CTA, 2001).

U.S. exports of organic foods are also difficult to estimate. Sales of organic foods are growing worldwide, led by the EU, U.S., and Japanese markets. The global organic market was valued at \$23 billion in 2002 (Willer and Yussefi, 2004). An Organic Trade Association (OTA) report (Fuchshofen and Fuchshofen, 2000) estimates U.S. organic exports in 2000 at \$200 million to \$300 million, and FAS estimates organic food exports in 2002 between \$125 million and \$250 million (USDA, FAS, 2005). The largest U.S. export categories for organic foods are soybeans, fresh and dried fruit, frozen vegetables, fruit juices, and minor food ingredients. The biggest export market for U.S. organic foods is Canada, estimated at \$75 million to \$150 million per year. Other major markets for U.S. organic food exports over the last 5 years include Japan, the EU, Taiwan, South Korea, New Zealand, and Australia.

Costs of Converting to and Producing Organic Products

The transition from conventional chemical-intensive farming systems to organic systems typically involves high managerial costs and risks of shifting to a new way of farming, and production costs may continue to be higher in ongoing organic operations. Costs of production can be higher in organic production systems because of a number of factors, including the relatively intensive use of labor; use of specialized equipment and other substitutes for synthetic chemicals; and high prices charged for organic seeds and other inputs. Another major factor is the use of longer crop rotations for pest and disease suppression in organic production systems. Cumulative net returns can be lower over time because high-value crops are included less frequently in organic systems than conventional systems (Temple, 2000).

The fees charged by State and private certifiers represent an additional, ongoing expense in certified organic farming systems, which can be a financial burden for smaller farmers. Certification agencies require documentation of a 3-year transition (conversion) period, during which land must be managed under approved practices, before certifying any crop or pasture acreage. Farmers cannot obtain the organic price premiums for certified organic commodities during this period, though in some cases higher prices can be obtained for "transitional" commodities. Production cost budgets are available for a number of organic fruit and vegetable production systems (Born, 2004), including small mixed-vegetable operations that are particularly common in the organic sector (Grubinger, 1999; Estes et al., 2003), as well as larger scale operations in California (University of California).

Organic produce receives a premium at all levels of the marketing chain reflecting these differences in production costs. In addition, marketing costs may also be higher for organic products because of additional processing, transportation, and handling charges. USDA organic standards require product segregation throughout the marketing chain. Also, commodities may be scarce when they are out of season in California, where domestic organic fruit and vegetable production is concentrated, and organic price premiums may be particularly vulnerable to weather conditions because of this geographic concentration (Ro and Frechette, 2001).

Organic Food Consumers

A number of industry and academic studies have examined consumer behavior to identify factors that influence purchases of organic foods. Several industry groups surveyed consumers about their preferences and buying habits for organic food. *Nutrition Business Journal* (2003) developed a consumer model based on usage and expenditure surveys performed by six agencies or companies, and reconciled it against retail and wholesale data. Based on model results for 2002, only a very small percentage of the U.S. population—2.4 percent, or 5.4 million consumers—are either frequent consumers (spending \$50 a month) or heavy consumers (spending \$200 a month) of organic food. A Whole Foods Market survey (2004) indicated that 54 percent of U.S. consumers have tried organic foods, and that 14 percent of the U.S. population consumed more organic food than in the prior year. The Whole Foods survey also reveals that nearly 1 in 10 Americans consume organic products regularly (several times per week).

According to Hartman's nomenclature, of the 66 percent of all consumers who claim to use organic products, 21 percent make up "core" consumers, 66 percent constitute the "midlevel," and the remaining 13 percent represent "periphery" consumers (Barry, 2004). Results of the Hartman Group's 1999 survey suggest that 3 percent of all consumers are "heavy" buyers of organic products, and 29 percent are "light" buyers (Hartman Group, 2002). The survey finds that organic vegetables and fruits fall into the top three categories of purchased organic products for both light and heavy consumers (vegetables rated second and fruits third for heavy users, and first and second for light users).

Consumer surveys also identified the factors that influence organic food purchases. In the 1980s and 1990s, concern for the environment drove consumers to purchase organic foods. However, today's consumers purchase organic foods for a variety of reasons. Respondents to a nationwide survey cited health and nutrition (66 percent), taste (38 percent), food safety (30 percent), and the environment (26 percent) as motivating factors behind organic food purchases (Hartman Group, 2002). In another survey, consumers cited the environment (58 percent), health (54 percent), food quality (42 percent), and support for small and local farmers (57 percent) as influences (Whole Foods, 2004). In addition, surveys show that consumers of organic foods are diverse in income level and race/ethnicity. Over half of those who frequently buy organic food in the United States have incomes below \$30,000,3 and African-Americans, Asian-Americans, and Hispanics use more organic products than Caucasians (Hartman Group, 2002). Price leads the list of barriers to purchasing organic products (Walnut Acres, 2001; Whole Foods, 2004; Hartman Group, 2002), and availability of organic products is the second most often cited barrier (Hartman Group, 2002).

Academic studies have taken a slightly different tack in examining consumer behavior by complementing surveys with statistical analysis to depict the typical consumer of organic foods. According to Estes and Smith (1996), consumers consider the following factors important when

³The results of the Hartman survey are interesting, given that a USDA ERS study that found that low-income households eat less fresh fruits and vegetables than higher-income households (Blisard et al., 2004), suggesting that additional research on who buys organic foods is necessary.

purchasing fresh produce: price, size, and packaging, whether the item is on sale, and whether the item is organic. Appearance of fresh produce also matters to consumers, with the number of cosmetic defects affecting the likelihood of an organic product's being purchased (Estes and Smith, 1996; Thompson and Kidwell, 1998). A consumer's age, sex, and education level has little effect on his or her decision to buy organic produce. In fact, consumers with advanced degrees are less likely to buy organic produce (Thompson and Kidwell, 1998). Consumers concerned about food safety, as well as those who enjoy trying new products, are more likely to buy organic produce (Govindasamy and Italia, 1990). Finally, households with children under age 18 are more likely to purchase organic produce (Thompson and Kidwell, 1998).

Organic Fruit and Vegetable Production

Overall, fruit and vegetable farms made up just 6 percent of U.S. certified organic acreage in 2001, the most recent year such data are available (Greene and Kremen, 2003). In 2001, approximately 71,600 vegetable acres were certified organic, accounting for 1.6 percent of the total U.S. vegetable acreage in 2001. Approximately a third of the organic certified vegetable acreage was planted to lettuce, tomatoes, or carrots, and the rest was for other mixed vegetable acreage, other vegetable crops, and vegetable acreage that could not be classified. Nearly 5 percent of the total U.S. lettuce acreage was managed under certified organic farming systems in 2001, and nearly 4 percent of carrot acreage and 1 percent of tomato acreage was certified organic.

Certified organic fruit and tree nut acreage totaled about 55,675 acres (49,790 acres in fruits and 5,883 acres in tree nuts), accounting for approximately 1.3 percent of total U.S. fruit and tree nut acreage (Greene and Kremen, 2003). Organic grapes accounted for 29 percent of the acreage certified, followed by apples (24 percent) and citrus (20 percent); 27 percent of the total was unclassified. The unclassified category included a substantial amount of berries and stone fruits.

Among all States, California (with 40,632 acres) was the biggest organic vegetable producer in 2001, accounting for 41 percent of U.S. certified organic vegetable acreage, and the top producer of organic tomatoes, lettuce, and carrots. California also led all States in organic fruit acreage, with almost 25,000 acres, approximately half of the U.S. total. Being the top producer of organic apples, Washington had the second-largest organic fruit acreage (9,242 acres), and the second-largest organic vegetable acreage (7,174 acres). Colorado had the third-largest amount of organic vegetable acreage (4,889). Florida had the third-largest organic fruit acreage (6,154 acres) and was the top producer in organic citrus crops.

These numbers understate the importance of organic agriculture in some States. For example, certified organic acreage accounted for over 10 percent of the vegetable acreage in Vermont, New Hampshire, Maine, and Colorado in 2001, and over 2 percent of the vegetable acreage in Connecticut, Arkansas, Massachusetts, Utah, Washington, California, Oregon, and Pennsylvania. In many States, particularly in the Northeast and Southeast, most certified organic operations are small-scale farms that produce a vast array of vegetable crops, fruits, herbs, and flowers for marketing directly to consumers in the local area.

Since 1993, the Organic Farming Research Foundation (OFRF) has conducted periodic nationwide surveys of certified organic farmers. These surveys represent an effort to assess organic farmers' research and information needs, and to collect general demographic data about organic farmers across the United States. OFRF's most recent survey was released in 2004 and represented information from 2001. It was the first to focus on marketing information (Walz, 2004).

Of the almost 1,200 respondents to OFRF's survey, 43 percent produced organic vegetables in 2001, representing 9,022 acres of land in vegetable crops. In terms of sales of organic vegetables, respondents sold 74 percent as fresh market products, 19 percent as products to be processed, 3 percent as value-added products, and 3 percent as seed or propagation stock. The top four vegetables represented in the survey by acreage were spinach, sweet corn, lettuce, and broccoli.

OFRF incorporated nuts and tree crops into its fruit category, with 36 percent of respondents producing organic fruits, nuts, or tree crops in 2001, representing 6,611 acres. Farmers sold these products as fresh (55 percent), as products for processing (26 percent), as value-added products (19 percent), and as seed or propagation stock (less than 1 percent). The top three fruits represented in the survey by acreage were wine grapes, apples, and strawberries.

Organic fruit and vegetable growers made use of the same market channels, but the survey responses suggest vegetable growers relied on a wider variety of market outlets. Eighty percent of organic vegetable producers (as well as producers of herb, floriculture, mushroom, and honey products) sold their products through consumer-direct channels (e.g., onfarm sales, farmers' markets, community-supported agriculture), 69 percent sold through wholesale markets (including processors and packers, distributors, cooperatives, and supermarket buyers), and 54 percent sold through direct-to-retail markets (e.g., natural food stores, restaurants, and conventional supermarkets). In contrast, 58 percent of fruit and tree nut producers sold their products through consumer-direct channels, 50 percent sold through wholesale markets, and 38 percent sold through direct-to-retail markets.

Organic Fruit and Vegetable Prices

Many organic industry participants and observers believe that price premiums for organic products need to decrease if organic foods are to penetrate much beyond the 2- to 3-percent level into the mainstream. Some experts point to evidence that shows prices and premiums are already declining somewhat: according to interviews with growers and distributors, price volatility is still evident in organic produce but the fluctuations had evened out somewhat and organic prices are closer to conventional prices than generally perceived (NBJ, 2003). These observations are supported by economic theory, which suggests high prices and high profits accrue to the innovators and adopters of new technologies (organic, in this case), and that the profitable niche will attract new suppliers, with prices and profitability of the niche product falling over time (Blank and Thompson, 2004).

Organic farmers, however, would much rather see their products continue to command price premiums, which generate higher profits. In OFRF's 2001 survey of organic farmers (Walz, 2004), 41 percent of respondents report receiving price premiums on all of their products sold, and 71 percent received a price premium on at least half of their product sold. When asked about the circumstances that made it difficult to receive price premiums, vegetable and fruit producers cited oversupply issues and cheap imports most often, as well as limited local demand for organic products in some areas (e.g., rural areas) and price competition from conventional items (e.g., corn and strawberries). On the other hand, a number of respondents found conventional prices high enough to warrant selling their organic products at these prices.

Systematic collection of price data for organic products has been limited, thus preventing in-depth analysis of market trends in prices, margins, and price premiums for organic foods, particularly as they compare with trends for conventional foods. Though covering different years and products, several U.S. studies have examined organic price premiums. These studies of farm-level, wholesale, and retail organic price data, collected by private and nonprofit organizations, show significant premiums for organic fruits, vegetables, grains, and milk in the 1990s and beyond.

USDA tracked wholesale organic price premiums for two fresh vegetables between 1989 and 1992 and found annual average prices that were generally double conventional prices, with wide variation on a weekly basis (USDA, ERS, 2003). Monthly farmgate price premiums for several major organic fruits and vegetables consistently exceeded 100 percent between 1992 and 1996, based on reports from *Organic Food Business News* (Vandeman, 1998). Supermarket scanner data showed similar price premiums for frozen organic vegetables during this period (Glaser et al., 1998). Greene and Calvin (1997) found an average price premium of 14 percent for organic mesclun mix and 110 percent for organic carrots for a 14-month period during 1996-97. Finally, over a 17-month period during 2000-01, Sok and Glaser (2001) found an average price premium of 130 percent for organic broccoli, 125 percent for organic carrots, and 10 percent for organic mesclun lettuce at the wholesale level.

Limited data on wholesale and farmgate prices for organic products are available from USDA and private sources. USDA's Market News Service (produced by the Agricultural Marketing Service (AMS)), includes wholesale prices for organic items when available in its daily wholesale fruit and vegetable reports, which cover terminal markets in 15 U.S. cities. Organic produce prices first appeared in the Boston Wholesale Fruit and Vegetable Report and the Philadelphia Wholesale Fruit and Vegetable Report in 1992. Since then, the Market News Service has reported organic prices in a number of other wholesale markets on a sporadic basis. The Boston and San Francisco markets are the only markets, however, in which organic prices are regularly reported for approximately 10 fruits and vegetables. In a recent inventory of daily organic prices by AMS (May 2003 to May 2004), a large number of organic prices were reported for Dallas (653) and Baltimore (459), but these numbers are still much lower than for Boston (4,109) and San Francisco (1,760). The inventory also showed that prices for 58 organic fruit and vegetable commodities were reported during the same period, but only 11 had over 200 different daily price reports.

At the farmgate level, *Organic Food Business News* (OFBN) provides organic price data for fruits and vegetables gathered from a weekly nation-wide survey of farmers, buyers, traders, and shippers. OFBN's data provide regular information on price levels for a variety of organic crops, over a long period of time. However, the data are from a private source and are hard to evaluate for consistency and accuracy. Comparisons of organic prices to conventional prices at the farmgate level are further limited to those items that are reported by USDA's National Agricultural Statistics Service (NASS).

Prices for Organic Broccoli, Carrots, and Mesclun Mix

Broccoli, carrots, and mesclun mix are the most consistently reported organic commodities. This report details price premiums for broccoli and carrots, both at the wholesale and farmgate level, and mesclun mix, at the wholesale level, for 2000-04. The analysis of wholesale prices is based on organic and conventional pricing data gathered by USDA's AMS. AMS reports high and low prices when available. The monthly prices used here are simple averages of the high and low prices reported.⁴ Farm-level analysis is based on OFBN price data used to calculate monthly prices for organic products. OFBN provides weekly price ranges (lows and highs), and midpoints were computed on these ranges. The data provided by OFBN include a simple average of the month's midpoints. Conventional farm prices are reported as monthly averages in ERS Outlook Reports, based on monthly prices reported by NASS.

Streff and Dobbs (2004) note, however, OFBN prices may not accurately represent the prices received by most farmers because the prices are not weighted on the basis of quantities sold, but are simple highs and lows. Prices received for organic produce by different farmers can vary widely within any given month or year. While this effect may also apply to prices received by farmers producing conventional foods, price variation is likely to be greater for organic farmers. The limitation posed by averaging simple highs and lows also holds true for the wholesale-level data, for both conventional and organic prices.

Over the period 2000-04, organic price premiums were higher for both broccoli and carrots at the wholesale level than at the farmgate level (table 2). Market margins for farmgate to wholesale were higher in the organic sector than in the conventional sector for broccoli and carrots, which is consistent with earlier studies indicating that organic wholesalers earn higher margins than conventional wholesalers (Dimitri and Richman, 2000). Also consistent with earlier studies (Sok and Glaser, 2001), annual organic price premiums for broccoli and carrots are close to 100 percent or above (the highest was 180 percent in 2003 for wholesale broccoli) for all but organic farmgate carrots. Annual organic price premiums for mesclun mix, at the wholesale level, range from 6 to 9 percent over the 5-year period.

Figures 2-6 detail quarterly price premiums for each commodity.⁵ While quarterly prices for wholesale conventional broccoli have remained steady at mostly \$8-\$12 per carton (carton of 14-18 count bunches) over the last 5 years, per carton prices for wholesale organic broccoli have shown more variability, ranging from \$18 to almost \$38 (fig. 2). Except for two quarters, price premiums have consistently remained above 100 percent over the 5-year period, with 65 percent being the lowest price premium and 223 percent the highest.

Farmgate broccoli prices follow a similar pattern, with most conventional prices in the range of \$5-\$7 per 23-pound carton (comparable to the wholesale carton), with \$5 the lowest and \$10 the highest (fig. 3). Per carton prices

⁴The monthly price averages the month's daily average of the reported high and low prices.

⁵Quarterly prices were calculated by averaging the monthly prices in the organic farmgate and wholesale prices data product at

www.ers.usda.gov/data/OrganicPrices

Quarterly price premiums are calculated using quarterly organic prices and quarterly conventional prices. Organic price premiums are calculated by subtracting the conventional price from the organic price and dividing the difference by the conventional price.

Table 2

Annual wholesale and farmgate price premiums and market margins for produce, 2000-04

	Organic price premium		Market margins for	farmgate to wholesale
Item/calendar year	Wholesale	Farmgate	Organic	Conventional
		F	Percent	
Broccoli				
2000	124	99	72	53
2001	141	100	93	56
2002	176	130	93	51
2003	180	133	82	42
2004	153	117	96	64
Carrots				
2000	126	117	90	71
2001	143	108	69	36
2002	152	89	64	24
2003	162	91	69	23
2004	148	75	68	22
Mesclun mix				
2000	6	n/a	n/a	n/a
2001	9	n/a	n/a	n/a
2002	8	n/a	n/a	n/a
2003	6	n/a	n/a	n/a
2004	7	n/a	n/a	n/a

Notes: n/a = not available. Organic price premiums are the percent increase over conventional prices and are calculated by subtracting the conventional price from the organic price and dividing the difference by the conventional price. Market margins are the difference between farmgate and wholesale prices. Annual price premiums and marketing margins are calculated using an average of monthly data.

Sources: Calculated by USDA's Economic Research Service from Organic Food Business News, 2004; USDA, ERS, 2004a-b; USDA, AMS, 2004.

for organic broccoli varied between \$11 and \$23. However, farmgate price premiums have been lower than those at the wholesale level. In 8 of the 20 quarters, price premiums were below 100 percent (lowest 35 percent), and the highest price premium in the 5-year period was 195 percent.

Both quarterly wholesale conventional and organic prices for carrots have remained steady since mid-2001, leading to stable price premiums between 130 and 175 percent from third quarter 2001 to 2004 (fig. 4). Prior to 2001, organic carrot prices showed greater variability, with wholesale prices ranging from \$19 per sack (sack of 24-count 2-pound bags, size medium to large) in mid-2000 to \$34 per sack in mid-2001. Prices per sack steadied after 2001 and ranged from a low of \$29 per sack to \$32 per sack through late 2004. Conventional prices per sack have remained relatively steady throughout the 5-year period, with prices ranging from \$10 to \$13.

Farmgate prices for organic carrots fluctuated prior to the third quarter 2001 (ranging from \$10 in mid-2000 to \$20 in mid-2001) (fig. 5). Conventional prices for carrots also varied before 2001, leading to swings in price premiums in 2000 from 44 to 202 percent. Per sack prices for organic carrots at the farm level then stabilized from mid-2001 and have remained at \$18.6 After the second quarter 2001, conventional prices per sack also stabilized, ranging from \$9 to \$12, with organic premiums ranging from 55 to 132 percent. However, prices of conventional carrots increased in the first two quarters of 2004 and then decreased sharply in the third quarter. The relative stability of organic and conventional carrot prices likely stems from the fact that both products are grown almost exclusively under contract.

⁶Because of the proprietary nature of the data, it is not clear why organic carrot farmgate prices have remained constant at \$18.35 since July 2002.

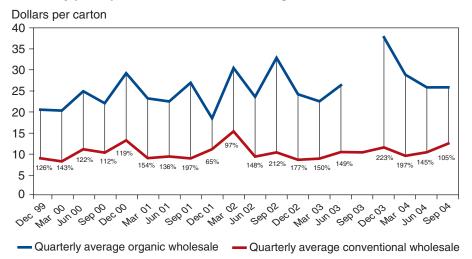
Mesclun mix showed a markedly lower wholesale price premium than the other commodities studied, ranging from -10 percent to 18 percent quarterly over the last 5 years (fig. 6). Also, unlike the other commodities whose prices have varied over the years, both organic and conventional mesclun mix have noticeably decreased in price since the late 1990s. Organic prices have fallen from around \$9-\$10 per carton (3-pound carton) in the late 1990s to slightly more than \$6 per carton in 2004. In the conventional sector, per carton prices have fallen from \$8-\$9 in the late 1990s to almost \$6 in 2004.⁷ The price premium for organic mesclun has always been much lower than for other commodities (Greene and Calvin, 1997). Mesclun, first introduced as an organic crop in the 1990s, initially sold for high prices that attracted both organic and conventional producers to the market. As the supply of organic and conventional mesclun increased, the prices of both declined, although organic products maintain a small premium.

The trends in price premiums for broccoli and carrots over time suggest that, for the time being, even though certified organic acreage is rising rapidly, demand appears to be growing fast enough so that farmers and wholesalers are maintaining an organic premium. Interestingly, the wholesale organic premium consistently exceeds the organic premium at the farmgate for broccoli and carrots. In contrast, wholesale price premiums and prices for both organic and conventional mesclun mix have continued to narrow since the mid-to-late 1990s.

These results cannot be generalized to the wide range of organic fruits and vegetables, and the limited availability of price data means that a broader survey of price premiums for organic goods is not possible at this time. The lack of a system for tracking organic prices at the farm, wholesale, and retail level means that—for the immediate future at least—price and premium trend analysis will be limited to these few commodities.

Figure 2

Quarterly price premiums for wholesale organic broccoli



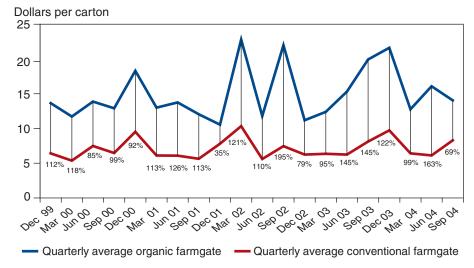
Notes: Carton includes 14-18 count bunches (23 pounds). Price premiums shown as percentages in figure. Price data not available for organic broccoli for the quarter July-September 03. (noted as Sep 03 in chart)

Source: Calculated by USDA's Economic Research Service from USDA, AMS, 2004. See underlying data at www.ers.usda.gov/data/OrganicPrices

⁷Only wholesale prices for mesclun mix are available, since NASS does not collect farmgate price information on this commodity.

Figure 3

Quarterly price premiums for farmgate organic broccoli

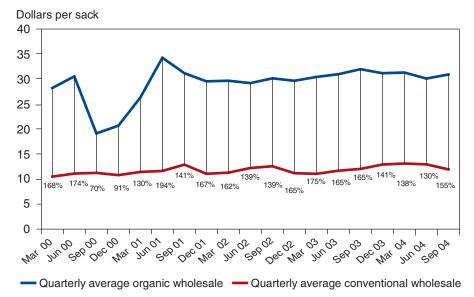


Notes: Carton includes 14-18 count bunches (23 pounds). Price premiums shown as percentages in figure.

Source: Calculated by USDA's Economic Research Service from *Organic Food Business News*, 2004 (organic) and USDA, ERS, 2004a-b (conventional). See underlying data at www.ers.usda.gov/data/OrganicPrices

Figure 4

Quarterly price premiums for wholesale organic carrots



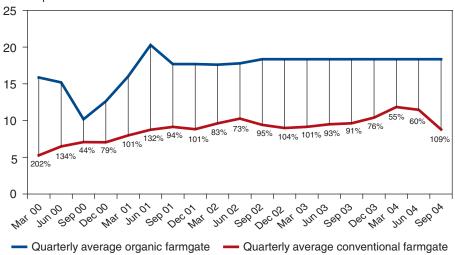
Notes: Sack includes 24-count 2-pound bags (size: medium to large). Price premiums shown as percentages in figure.

Source: Calculated by USDA's Economic Research Service from USDA, AMS, 2004. See underlying data at www.ers.usda.gov/data/OrganicPrices

Figure 5

Quarterly price premiums for farmgate organic carrots

Dollars per sack



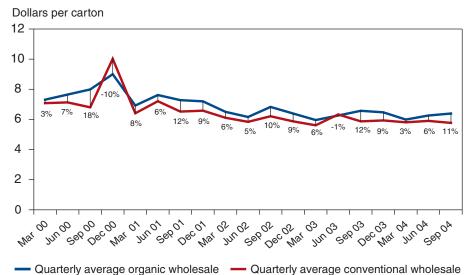
Notes: Sack includes 24-count 2-pound bags (size: medium to large). Price premiums shown as percentages in figure.

Source: Calculated by USDA's Economic Research Service from Organic Food Business News, 2004 (organic) and USDA, ERS, 2004a-b (conventional).

See underlying data at www.ers.usda.gov/data/OrganicPrices

Figure 6

Quarterly price premiums for wholesale organic mesclun mix



Notes: Carton includes 3 pounds of mesclun mix. Price premiums shown as percentages in figure.

Source: Calculated by USDA's Economic Research Service from USDA, AMS, 2004.

See underlying data at www.ers.usda.gov/data/OrganicPrices

Looking Ahead

Fresh fruits and vegetables have long been an important component of the organic food sector, and this status is likely to continue into the future. Despite higher prices for organic products than for conventional products, the number of consumers who purchase organic produce is growing, and this group is becoming more diverse. Consumers cite various factors as influences in their decisions to purchase organically grown food, including health, nutrition, and support for the environment and for small and local farmers. For this group of consumers, rising expenditures over the last 20 years indicate that these factors outweigh the higher direct costs of organic foods. Yet, a larger body of consumers has indicated that the size of the organic price premium deters them from buying organically grown food, and thus likely will constrain market expansion at some point.

Farmers benefit by receiving higher prices, and presumably higher profits, for their organic products. A natural tension results from this effect. Higher prices and profitability encourage farmers to increase production or to enter the organic sector. If supply begins growing faster than demand, price premiums and profitability will decline. At the same time, as the price differential between organically and conventionally grown products diminishes, more consumers are likely to purchase organic food. Relative changes of supply and demand will help determine whether price premiums and higher profitability will continue for organic farmers and businesses.

For more information on U.S. organic agriculture, see ERS's organic farming and marketing briefing room,

www.ers.usda.gov/briefing/organic.

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